American Journal of Psychiatric Rehabilitation

Expert Opinion Article

Assessing and addressing behavioral and physical health status and unmet needs of student Veterans with supported education

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Abstract

Objective: Assess the behavioral and physical health status and unmet healthcare needs among college student Veterans and the outcomes of a pilot of a supported education intervention on health status and healthcare utilization. *Methods*: Supported education services were provided to 41 student Veterans seeking help with academic performance at college campuses for up to 1.5 semesters. *Results:* Thirty-six Veterans (87.8%) met cut-off criteria for one or more behavioral or physical health conditions. Thirty of those (83.3 %) had zero healthcare appointments in the previous six months. Among those with unmet needs, there were larger reductions in the percentage of Veterans with health conditions among the intervention group compared to the control group. A larger proportion of Veterans with unmet healthcare needs in the intervention group reported having at least one healthcare appointment than did Veterans in the control group.

Keywords Psychiatric rehabilitation; supported education; college; healthcare; Veterans; behavioral health; college health

Introduction

Veterans are a significant and growing non-traditional student population. In 2022, approximately 446,486 post-9/11 Veterans Education Assistance Act (Post-9/11 GI Bill, 2008) beneficiaries (excluding children and spouses) were enrolled in higher education or technical programs (Veterans Benefits Administration, 2022). Unfortunately, positive outcomes for student Veterans are in doubt. Compared to non-Veteran students, student Veterans have lower grade point averages and completion rates (Grossbard et al., 2014; Morissette et al., 2021). First-year dropout rates for student Veterans are as high as 88% (Ulrich & Freer, 2020) and 37% of Veterans attend more than two educational institutions and take longer to complete their degrees than non-Veterans (Rattray et al., 2019; Wagner & Long, 2022).

Significant behavioral challenges (i.e., mental health and/or substance use disorders) and other health conditions (i.e., physical, neurological, or other non-behavioral disorders) can be obstacles for student Veterans in completing their education (Karney et al., 2008; Pew Research Center, 2011; Radford, 2011; Rattray et al., 2019; Taber & Hurley, 2009; Tanielian & Jaycox, 2008). Forty percent of student Veterans have reported being diagnosed with a mental health condition in their lifetime (Grossbard et al., 2014). Nine to 46% of student Veterans exhibit clinical symptoms of post-traumatic stress disorder (PTSD), and 12% to 44% have symptoms of clinical depression (Barry, Whiteman, MacDermid Wadsworth et al., 2012; Currier et al., 2017; Currier et al., 2018; Grossbard et al., 2014; Rudd et al., 2011; Thomas et al., 2018;). When compared to non-Veteran students, Veterans have more academic and behavioral health difficulties (Morgan et al., 2024; Ulrich & Freer, 2020) including more symptoms of PTSD, depression, and suicidal ideation (Barry, Whiteman, & MacDermid Wadsworth, 2012; Fortney et al., 2016; Morrissette et al., 2021;).

Behavioral health issues are exacerbated for military personnel and Veterans who served in combat (Rattray et al., 2019; Sareen et al., 2007; Seal et al., 2009). Deployed student Veterans exhibited a higher proportion of high-risk drinking (41% to 27%) and had a higher lifetime prevalence of PTSD (24% to 9%) than those who had not deployed (Grossbard et al., 2014). A state-wide health survey of college students in Minnesota, the College Student Health Study (Boynton Health Service, 2017), reported that OEF/OIF student Veterans diagnosed with PTSD were 1.5 times more likely to exhibit high-risk drinking than student Veterans without a PTSD diagnosis (Grossbard et al., 2014). Moreover, the increase in mental health disorders among student Veterans, especially anxiety, was associated with higher substance use disorder rates than among non-Veteran students (Barry, Whiteman, MacDermid Wadsworth & Hitt, 2012; Teeters et al., 2020).

Among student Veterans who experience mental health disorders, many do not seek care for their health (Barry, Whiteman, MacDermid Wadsworth et al., 2012; Burnam et al., 2009; Currier et al., 2017; Currier et al., 2018;). Significant challenges to help-

seeking for mental healthcare (i.e., a wide range of services delivered by a variety of healthcare professionals that are preventive, diagnostic, therapeutic, or rehabilitative) among student Veterans include caring for a family, working full time, the stigma surrounding asking for or accepting treatment for a mental health condition, lack of awareness of eligibility of services or need for healthcare services, difficulty in finding information about services, limited availability of appointments for services, concern about not deserving services, lack of trust in disclosing disabilities, and a military culture that emphasizes personal strength to overcome challenges (Currier et al., 2017; Hunter-Johnson et al., 2020; National Academies of Sciences, Engineering, and Medicine, Health and Medicine Division, Board on Health Care Services, & Committee to Evaluate the Department of Veterans Affairs Mental Health Services, 2018; Perkins et al., 2017; Perkins et al., 2020); Rattray et al., 2019; Teeters et al., 2020; Ulrich & Freer, 2020; Wagner & Long, 2022). Moreover, negative personal experiences, other Veterans' negative stories about obtaining healthcare, and self-stigma may exacerbate prevailing beliefs about the ineffectiveness of healthcare services (Albright et al., 2017; Currier et al., 2017; Currier et al., 2018; Hoge et al., 2004; Nash et al., 2011; Rattray et al., 2019; Vogt et al., 2014). Such concerns are echoed by non-Veteran students (Eisenberg et al., 2007, Eisenberg et al., 2009Eisenberg et al., 2012; Perkins et al., 2020).

VITAL-SEd and Unmet Needs for Healthcare

Educational assistance is one of the most important priorities of post 9/11 Veterans, with Perkins and colleagues (2020) finding that 25% of Veterans report using at least one program to assist them with their education during their first 90 days after separation from the active service. Within the U.S. Department of Veterans Affairs (VA), the Veterans Health Administration (VHA) launched a program in 2012 to promote student Veterans' academic success and clinical engagement. Titled "The Veterans Integration to Academic Leadership (VITAL)", the program deploys clinicians and other VA personnel to colleges to provide education and training about student Veterans to faculty and staff. For the individual student Veteran, VITAL provides short-term assistance with immediate needs such as military education benefits or referrals to academic and healthcare services. VITAL clinicians may also provide longer term mental health counseling and ongoing treatment.

Over the past decade, a VA medical center in the northeastern U.S. expanded the VITAL program to include individualized supported education services (SEd). SEd was originally designed for non-Veteran students with behavioral health conditions that interfere with their academic performance or retention (Ringeisen et al., 2017). SEd directly addresses academic challenges by using a psychosocial rehabilitation model of providing support and building skills to improve academic performance (e.g., acquiring academic accommodations, improving study habits, and communication skills) (Ringeisen et al., 2019). The SEd model typically involves provision of services according to need, i.e., duration and type of services are not prescribed. Providers are often Master's level rehabilitation counselors or have higher mental health clinical credentialing. Sessions tend to be weekly and individualized.

In addition to improving academic performance, adding SEd to the VITAL program was a strategic approach for facilitating Veteran help-seeking for behavioral or physical healthcare needs. Veterans who may be loath to identify or seek care for physical and behavioral health issues may more readily express and seek help for their challenges with school, and thus engage with SEd. In fact, a study examining SEd services found that Veterans with more severe combat exposure and PTSD symptoms, service-related mild traumatic brain injury (mTBI), less academic self-efficacy, and unemployed were more likely to use SEd services compared to other student Veterans (Kinney et al., 2020). Through the individualized, personal, and intensive process of SEd, which can last for many months, there arises a natural opportunity for the Veteran to disclose underlying health challenges that impact academic performance (Crossman et al., 2021; Ulrich & Freer, 2020). These challenges may otherwise remain undisclosed, resulting in healthcare needs that are "unmet," that is, not receiving healthcare services for behavioral or physical disorders.

The combined program was referred to as VITAL-SEd. A manual was developed based on extensive interviews with VITAL-SEd providers about their experiences facilitating a program of supported education services embedded in VITAL services (Ellison et al., 2020). In addition to training providers on assisting student Veterans with academic challenges, the manual trains VITAL-SEd providers to recognize and address undisclosed health needs that may underlie poor academic performance. Providers are trained to use the supportive nature of their relationship with the Veteran to facilitate help-seeking behavior and, ultimately, entry into healthcare services. To explicate, when the SEd provider explores barriers to academic performance with the Veteran, the Veteran may disclose a physical or behavioral condition (e.g., poor sleep, substance use). VITAL-SEd providers assist in enrolling student Veterans, if not already enrolled, in VA services. Additionally,

with the Veteran's permission, providers directly provide services for those conditions (e.g., Cognitive Behavioral Therapy for insomnia) or make referrals to healthcare professionals who can address that disclosed condition (e.g., substance abuse treatment programs). SEd providers encourage and follow up with the Veteran on appointments with behavioral and physical healthcare professionals and offer additional therapeutic support if utilization of referred services had failed (Crossman et al., 2021).

This paper reports on the outcomes of a randomized pilot of the VITAL-SEd approach. We sought to first examine how widespread were physical and behavioral disorders among a sample of student Veterans seeking help with their academic performance, and among those Veterans that have a condition, what proportion do not seek care for the condition – thus having an "unmet" healthcare need. They are a focus of this research because the VITAL-SEd intervention is designed in part to address Veterans who have serious health conditions but who are not seeking help for those conditions due to perceived stigma or any other reason. We wanted to examine whether this combined service model (VITAL-SEd) would improve health status and promote healthcare utilization among those Veterans with unmet healthcare needs compared to a control group. We assumed that VITAL-SEd would have minimal or undistinguishable impact on health status or healthcare utilization among those student Veterans who had a condition but were already receiving healthcare services. Accordingly, the study research questions were: 1) What are the physical and behavioral health statuses among a sample of student Veterans seeking help with academics? 2) What proportion of a sample of student Veterans who meet cut-off criteria for behavioral and physical health conditions are not receiving healthcare for that condition (i.e., they have "unmet" healthcare needs)? 3) Are there differences in changes in physical and behavioral conditions from baseline to follow-up among student veterans with unmet healthcare needs when comparing those who received VITAL-SEd services to those who did not? 4) Did the VITAL-SEd program increase healthcare utilization among student Veterans with unmet healthcare needs compared to the control group? We note that the impact of VITAL-SEd on academic performance will be reported in a separate publication.

Method

Sample and Procedure

Using a randomized controlled design, the study evaluated the potential of the VITAL-SEd pilot to impact healthcare status and healthcare utilization among students with unmet healthcare needs. Student Veterans were recruited from six area college campuses , (both two-year community and four-year colleges). Recruitment for the study was facilitated by a recruitment specialist who was a Veteran, and flyers about the study were provided to campus certifying officials to make available for interested student Veterans. A participant was eligible if they were 1) a Veteran of the U.S. armed forces; 2) currently enrolled in college and intended to maintain enrollment for the next six months; 3) willing to provide a release of information for academic transcripts; and 4) at-risk for academic failure as identified by themselves or by the Veteran certifying official. Student Veterans who had previously received VA-supported education services were not eligible to participate.

Forty-three (53%) of the 81 participants eligible for this study consented and were enrolled. Randomization and baseline assessments followed enrollment. Two participants dropped out shortly after baseline, leaving 41 participants in the study (control = 19, intervention = 22). Participants in the control group were given information on academic and healthcare resources available at their college and through the VA. Participants in the intervention group met with a trained VITAL-SEd provider. Using the VITAL-SEd manual, VITAL-SEd providers promoted skills and support for educational success. For participants who disclosed behavioral or physical health issues that impacted academic performance, the provider facilitated treatment for these conditions by either offering a relevant healthcare service as part of their existing VITAL-SEd service (if the participant preferred and the provider had the knowledge and experience to provide the care) or by creating a referral for the appropriate service (i.e., sleep clinic, behavioral health, or neurological assessment) and assisting in appointment scheduling and attendance. Participants in the intervention group worked with the VITAL-SEd provider for up to 1.5 semesters, with the participant determining the level of intensity (i.e., number and frequency of sessions, length, and type of services provided). Participants in the control group were provided a booklet describing academic resources on campus and VA and non-VA services and community resources addressing behavioral and physical healthcare services, and psychosocial needs such as financial, housing, or legal services.

Measures

In addition to self-reported demographic characteristics gathered at baseline, the following measures for behavioral and physical conditions were collected from all participants at baseline and post-intervention (i.e., following 1.5 spring or fall school semesters from baseline). *Posttraumatic Stress Disorder (PTSD)* was assessed using the PTSD

Checklist DSM-V (PCL-5) (Bovin et al., 2015; Weathers et al., 2013). This self-report symptom checklist assesses the 20 symptoms of PTSD outlined in the DSM-V and is designed to appraise symptom changes during and after interventions and screen for PTSD. Participants are asked to keep in mind their worst stressful experience while answering how bothered in the past month they were for each item (e.g., "In the past month, how much were you bothered by repeated, disturbing, and unwanted memories of the stressful experience?"). Each item uses a 5-point Likert scale ranging from 0 to 4. Ratings of the 20 symptoms are summed to create a total score. Scores range from 0 to 80, with a score of 31 or higher meeting the criteria for PTSD. Evaluation of the Psychometric properties of the PCL-5 scores exhibited strong internal consistency (α = .94), test-retest reliability (r = .82), and convergent (rs = .74 to .85) and discriminant (rs = .31 to .60) validity (Blevins et al., 2015). *Depression* was measured by the Patient Health Questionnaire-8 (PHQ-8) (Kroenke et al., 2009). Items ask about depressive symptoms experienced over the past two weeks with responses on a 4-point (0-3) Likert scale that are summed to create a total score ranging from 0 to 24, with a score of 15 or higher indicating moderately severe to severe depression. The PHQ-8 has shown satisfactory convergent validity and internal consistency (Lua et al., 2022). *Somatic symptoms* were measured by the Patient Health Questionnaire-15 (PHQ-15) (Kroenke et al., 2002). This measure assesses somatic symptom severity on a 3-point (0-2) Likert scale with a total severity score ranging from 0 to 30. A PHQ-15 score of 10 or higher indicates medium to high somatic symptom severity. The PHQ 15 shows moderate test-retest reliability (k coefficient at 0.60). In a sample of over 2000 patients, the measure showed good criterion validity with 78% sensitivity and 71% specificity (van Ravesteijn et al., 2009). *Hazardous drinking* was assessed by the Alcohol Use Disorders Identification Test-Consumption (AUDIT-C) (Bush et al., 1998), a 3-item alcohol screener that identifies at-risk drinkers. The total number of points ranges from 0 to 12. A score of 4 or more for men and 3 or more for women indicates hazardous drinking or active alcohol use disorders. The AUDIT-C has shown strong internal consistency with all items loading on a single factor and a strong correlation with breath alcohol tests (Barry et al., 2015). *Substance misuse* was assessed by the Drug Abuse Screen Test (DAST-10) (Gavin et al., 1989), which screens for drug use in the past 12 months. The total number of points ranges from 0 to 10, with a cut-off score of 3, indicating substance misuse. The DAST has moderate to high of test–retest, inter-item, and item–total reliabilities. A review of DAST psychometric properties indicates moderate to high validity, sensitivity, and specificity (Yudko et al., 2007). To measure whether a student Veteran was receiving or using healthcare services, the Services Use History Interview was used to assess *the types of appointments participants had in the last six months*. The Services Use History Interview is an adaptation of the Addiction Severity Index (ASI)-abbreviated measure (McLellan et al., 1992) and asks about 11 types of appointments for behavioral and physical healthcare. The items were collapsed into three categories: 1) neurology (i.e., neuropsychological assessment, neurological assessment), 2) behavioral health (i.e., substance use treatment, individual therapy, group therapy, couples therapy, family therapy), and 3) other types of appointment (i.e., other testing and evaluation labs, medical visit, physical therapy, recreational therapy). The cut-off criteria for each measure (i.e., PCL-5 >= 31 [PTSD]; PHQ-8 >= 15 [Depression]; PHQ-15 >= 10 [Somatic Symptoms]; AUDIT-C >= 4 for males and >= 3 for females [Alcohol Use]; DAST-10 >= 3 [Drug Use]) was applied to determine whether participants had one or more behavioral or physical health conditions as described above.

Analysis Plan

Sample characteristics were summarized (i.e., demographics, physical health, and behavioral health status) at baseline and post-intervention for all participants - overall and by group (i.e., control and intervention). Next, we developed a sub-sample of participants who met the criteria for having one or more of these five behavioral or physical conditions *and* who had not reported any healthcare appointment services to address these conditions in the previous six months. These participants were characterized as having "unmet" healthcare needs.

We conducted bivariate analyses to test the differences in the distribution of participants' characteristics at baseline between the control and intervention groups using Fisher's Exact Test (for categorical variables) and the Mann-Whitney Wilcoxon test (for continuous variables). A two-sided p-value of <0.05 indicated significance. Among those with unmet needs we obtained summary statistics (median, Quartile1, Quartile3) of baseline healthcare conditions and changes at follow-up. Further, we examined changes in reported use of healthcare services from baseline to follow-up by group (i.e., control and intervention). Due to the small sample size, we did not conduct tests for significant differences between groups for this analysis but rather reported on the magnitude of patterns observed. All analyses were conducted in SAS 9.3.

Results

Sample Characteristics

Table 1 displays the distribution of the demographic variables overall and by intervention and control group. Most were Army Veterans and had served in the Iraq and Afghanistan wars. The distribution of these characteristics was similar between the randomized groups, except for a higher proportion of non-White participants (63.6%) among the intervention group than in the control group (22.2%) (p=0.01).

To answer research question 1, we applied the cut-off criteria of the five measures of behavioral or physical healthcare conditions. As shown in Table 1, thirty-six of the 41 participants (88%) met the criteria for having one or more of the five behavioral or physical healthcare conditions measured at baseline [intervention=21 (95%) and control=15 (79%)].

Table 1 Distribution of demographic characteristics of participants at baseline - overall and by randomization groups (N=41)

Characteristics	Overall (N=41)	Intervention (n=22)	Control (n=19)	*p*[a]
	Median (Q1, Q3)			
Age in years	35 (30,45)	32 (30,43)	38 (30,54)	0.20
Military service time in years	4 (4,8)	4 (3,6)	4 (4,9)	0.43
	N[b] (Col %)			
Race				0.01
White	22 (55.0)	8 (36.4)	14 (77.8)	
Non-White	18 (45.0)	14 (63.6)	4 (22.2)	
Ethnicity				0.27
Hispanic or Latino	9 (24.3)	6 (33.3)	3 (15.8)	
Not Hispanic or Latino	28 (75.7)	12 (66.7)	16 (84.2)	
Gender				1.00
Male	35 (85.4)	19 (86.4)	16 (84.2)	
Female	6 (14.6)	3 (13.6)	3 (15.8)	
Marital Status				0.56
Never Married	8 (19.5)	3 (13.6)	5 (26.3)	
Married	16 (39.0)	10 (45.5)	6 (31.6)	
Divorced/Separated	17 (41.5)	9 (40.9)	8 (42.1)	
Education				0.45
High School/GED	7 (17.0)	5 (22.7)	2 (10.5)	
Some College or Associates	30 (73.2)	14 (63.6)	16 (84.2)	
College Degree	4 (9.8)	3 (13.6)	1 (5.3)	
Living Situation				0.59
Stable Housing	38 (92.7)	21 (95.5)	17 (89.5)	
Unstable Housing	3 (7.3)	1 (4.5)	2 (10.5)	
Military Branch				0.74
Army	28 (68.3)	16 (72.7)	12 (63.2)	
Non-Army	13 (31.7)	6 (27.3)	7 (36.8)	
Service Period				0.71
Gulf/Vietnam	9 (22.0)	4 (18.2)	5 (26.3)	
OEF/OIF/OND	32 (78.0)	18 (81.8)	14 (73.7)	
Financial Stability				0.35
Stable	19 (46.3)	12 (54.5)	7 (36.8)	
Unstable	22 (53.7)	10 (45.5)	12 (63.2)	
Had one or more behavioral or physical healthcare conditions[c]				0.16
No	5 (12.2)	1 (4.5)	4 (21.1)	
Yes	36 (87.8)	21 (95.5)	15 (78.9)	

[a] Based on Fisher's Exact Test (categorical variables) or the Mann-Whitney Wilcoxon (continuous variables).
[b] Numbers may not add up to the overall population due to missing data.
[c] Cut-offs for unmet needs measures at baseline: PCL-5 >= 31 **OR** PHQ-8 >= 15 **OR** PHQ-15 >= 10 **OR** (AUDIT-C >= 4 for males and AUDIT-C >= 3 for females) **OR** DAST-10 >= 3.

To answer research question 2, we examined the number and percentage of Veterans who had an "unmet" healthcare need. Among the 36 student Veterans who met the cut-off criteria of having behavioral or physical health conditions (displayed in Table 1), 30 (83.3% of the total of 41 Veterans) also reported having no healthcare appointment services to address these conditions in the previous six months. Displayed in Table 2 is the number and percent of Veterans who met cut-off criteria for each of the five measured behavioral and physical health conditions. Results are displayed by the total sample (N=41) and then for the sub-sample of those with unmet healthcare needs (n=30) by intervention (n=18) and by control groups (n=12). Displayed are the measure score (median and quartiles) and the number and proportion of participants in each group that met the criteria for that condition for each group. The most common condition found among all participants was PTSD (66% of the total sample), followed by somatic symptoms (54%). Forty-one percent of participants met criteria for alcohol misuse. The pattern for the sub-sample of those with unmet health conditions is consistent with that found for the overall sample-- a large percentage of participants in the sub-sample met the criteria for having PTSD, somatic symptoms, and alcohol misuse.

To answer research question 3, we first examined changes in the distribution of the number and percentage of participants who met the diagnostic criteria for behavioral and physical health conditions at baseline and the number and percentage of those same participants who continued to meet diagnostic cut-off criteria at follow-up. This is shown in Table 3. In the total sample, except for drug misuse, which remained unchanged, there was a reduction in the number of participants who continued to meet diagnostic criteria at follow-up. We then examined changes in the number and percentage of those Veterans who continued to meet cut-off criteria at follow-up for the sub-sample with unmet needs. Within the sub-sample, there were larger reductions in the number and percentage of participants with behavioral or physical health conditions from baseline to follow-up among the VITAL-SEd intervention group compared to the control group.

Table 2 Baseline behavioral and physical health scores for total sample and the sub-sample with number and percentage of those who met criteria by condition and group

			Sub-Sample with Unmet Needs (N=30)[a]			
	Total Sample (N=41)		Intervention (n=18)		Control (n=12)	
Measures	Score[b] Median (Q1, Q3)	Have Condition N (Col %)	Score[b] Median (Q1, Q3)	Have Condition N (Col %)	Score[b] Median (Q1, Q3)	Have Condition N (Col %)
PTSD (PCL-5)	40.0 (28.0,48.0)	27 (65.9)	36.5 (20.0,41.0)	11 (61.1)	45.0 (36.0,56.0)	10 (83.3)
Depression (PHQ-8)	9.0 (6.0,12.0)	6 (14.6)	9.0 (6.0,12.0)	2 (11.1)	10.0 (9.0,18.0)	4 (33.3)
Somatic Symptoms (PHQ-15)	10.0 (7.0,13.0)	22 (53.7)	10.5 (6.0,13.0)	11 (61.1)	8.0 (7.0,13.0)	5 (41.7)
Alcohol Use (AUDIT)	3.0 (2.0,5.0)	17 (41.5)	3.5 (2.0,8.0)	9 (50.0)	3.0 (2.0,5.0)	6 (50.0)
Drug Use (DAST-10)	0.0 (0.0,1.0)	5 (12.2)	0.0 (0.0,1.0)	1 (5.6)	0.5 (0.0,1.0)	2 (16.7)

[a] Participants with measures at baseline: PCL-5 >= 31 or PHQ-8 >= 15 or PHQ-15 >= 10 or (AUDIT-C >= 4 for males and AUDIT-C >= 3 for females) or DAST-10 >= 3 and had reported no healthcare appointments at baseline for the prior six months

[b] Among all participants in the sample (N=41)

Among the subsample of Veterans with unmet needs, of the 11intervention group participants that met PTSD diagnostic criteria at baseline, 36.4% (n=4) continued to meet PTSD criteria at follow-up. Whereas, among the 10 control group participants that met PTSD diagnostic criteria at baseline, 60.0% (n=6) continued to meet PTSD criteria at follow-up. This pattern was consistent for depression, somatic symptoms, and alcohol misuse, with a

more considerable reduction for the intervention group than for the control group in the proportion of participants with unmet needs who met the diagnostic criterion. The proportion of participants with drug misuse remained unchanged from baseline to follow-up for both groups in the unmet needs sub-sample.

Table 3 Distribution of change over time in meeting diagnostic criteria for behavioral and physical health conditions for total sample and sub-sample with unmet needs

Measures	Total Sample (N=41)		Sub-Sample with Unmet Needs (N=30)[a]			
			Intervention (n=18)		Control (n=12)	
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
	N (Col%)	N (Row %)	N (Col %)	N (Row%)	N (Col %)	N (Row %)
PTSD (PCL-5)	27 (65.9)	13 (48.1)	11 (61.1)	4 (36.4)	10 (83.3)	6 (60.0)
Depression (PHQ-8)	6 (14.6)	2 (33.3)	2 (11.1)	0 (0.0)	4 (33.3)	2 (50.0)
Somatic Symptom (PHQ-15)	22 (53.7)	11 (50.0)	11 (61.1)	4 (36.4)	5 (41.7)	3 (60.0)
Alcohol Use (AUDIT-C)	17 (41.5)	10 (58.8)	9 (50.0)	6 (66.7)	6 (50.0)	2 (33.3)
Drug Use (DAST-10)	5 (12.2)	5 (100.0)	1 (5.6)	1 (100.0)	2 (16.7)	2 (100.0)

[a] Participants with measures at baseline: PCL-5 >= 31 or PHQ-8 >= 15 or PHQ-15 >= 10 or (AUDIT-C >= 4 for males and AUDIT-C >= 3 for females) or DAST-10 >= 3 and had no appointments at baseline.

To answer research question 4 on changes in healthcare utilization comparing intervention and control groups within the unmet need subsample, we calculated changes from zero appointments in the previous six months in healthcare appointments at baseline to number of appointments within the last six months at follow-up. Displayed in Table 4 are results by type of appointment (any appointment, neurology, behavioral health, and other) for the total sample by intervention and control group and for the unmet needs sub-sample by group (Intervention and Control). For the total sample, participants in the intervention group who reported having zero healthcare appointments in the past six months at baseline (n=19), 63% of those (n=12) had at least one appointment at follow-up. In contrast, among the control group, 16 participants had no appointments at baseline, and only 38% (n=6) had an appointment at follow-up. This pattern was also observed for the unmet needs sub-sample. More intervention group participants (67%; n=12) reported having at least one healthcare appointment at follow-up than did participants in the control group (42%; n=5).

Table 4 Change in number and percent of healthcare appointments for total sample and sub-sample by condition

Appoint-ment Type	Total Sample (N=41)				Sub-Sample with Unmet Needs (N=30)			
	Zero Appointments at Baseline		Has Appointment at Follow-up		No Appointment at Baseline		Has Appointment at Follow-up	
	N		N (Row %)		N		N (Row %)	
	Intervention	Control	Interven	Contr	Interven	Contr	Interven	Contr
Any	19	16	12 (63)	6 (38)	18	12	12 (67)	5(42)
Neurology	18	14	5 (28)	2 (14)	17	10	5 (29)	2(20)
Behavioral Health	8	5	5 (63)	2 (40)	8	4	5 (63)	2(50)
Other	11	6	8 (73)	4 (67)	10	5	8 (80)	3(60)

Discussion

This research is aligned with previous findings regarding the prevalence of behavioral and physical health conditions among student Veterans in the United States. As measured in this pilot, 88% (n=36) of the overall sample screened positive for one or more healthcare conditions, primarily PTSD, somatic symptoms, and alcohol misuse (research question 1). Moreover, among the 36 participants who screened positive for healthcare conditions, 30

(83%) had no appointments for healthcare treatment in the previous six months (research question 2), confirming widespread "unmet" healthcare needs and the urgency to develop healthcare utilization strategies for student Veterans. VITAL-SEd is an intervention that addresses these unmet needs and employs a normative community setting (colleges), normative needs (academic pressures), and a non-healthcare relationship to facilitate healthcare utilization. Through the intensive individualized relationship formed between the student Veteran and the VITAL-SEd provider, barriers to healthcare utilization were addressed (e.g., stigma, negative perceptions about VA services, or treatment effectiveness). Findings from this pilot show promise for the VITAL-SEd intervention in increasing healthcare utilization and reducing the overall prevalence of health conditions among student Veterans. Further qualitative research on the pathways that Veterans use to enter care (Goldberg & Huxley, 1980; Rogler & Cortex, 2008), as well as the facilitators and barriers within the college setting would increase the VA's ability to adjust current outreach strategies to maximize existing supports and minimize barriers to care as have been done for other populations of Veterans (Bovin et al., 2019; Drebing et al., 2012).

Limitations of this study is the small sample size, which like all pilots, does not permit testing for statistically significant changes and may not accurately reflect the student veteran population. Further, the study relies on self-report rather than medical records for appointments kept. Future research could ameliorate these limitations with a fully powered randomized trial of VITAL-SEd.

Acknowledgements

Acknowledgements: This work was done at the VA Bedford Healthcare System, 200 Springs Road, Bedford, MA. This work was supported by the United States (U.S.) Department of Veterans Affairs, Rehabilitation Research and Development Service, REAP D1873-F (Drebing) Title: Social and Community Reintegration Research Program. The contents do not represent the views of Department of Veterans Affairs or the United States Government.

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